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From the desk of Rouzbeh



Dr. Rouzbeh Yassini

Net Neutrality asserts that all ISP-managed access to the Internet be equal, non-discriminatory, unhindered and at equal cost.

Hello,

It is safe to say that this Q2 of 2017 has been one of the more interesting periods of time in the broadband Internet space in our world. I have been focused on these activities, particularly as they occur in Washington, D.C. This edition of the newsletter provides a non-biased assessment of the pros and cons of the net neutrality rules put in place by the previous administration with the intent of establishing a baseline for analysis of new rules that will soon be upon us. We also continue to focus on broadband globally with another in a series of reports on IEEE activities by my colleague Paul Nikolich, and a roundup of some other interesting broadband goings on around the globe.

Restoring Internet Freedom and Net Neutrality:

Background

The FCC under Ajit Pai has recently initiated a process called **RESTORING INTERNET FREEDOM** as a means of replacing the 2015 Open Internet Order, or “Net Neutrality”.

The 2015 Open Internet Order transformed wireline and wireless Internet Service Providers (ISPs) into “Common Carriers” by reclassifying the Internet as a “Title II Common Carrier Service” which moved ISPs into a regulatory regime already in place for landline and mobile telephone services. The FCC reasoned that using Title II rules applicable to broadband Internet services would better protect them from reversal in court with their belief that Title II, in place for the mobile wireless industry for many years, had not stifled innovation nor investment in that market.

Net Neutrality asserts that all ISP-managed access to the Internet be equal, non-discriminatory, unhindered and at equal cost. So, traffic from all legal sources transported across the Internet must be treated the same. ISPs are, however, allowed to manage their networks sufficiently to provide a positive consumer experience, for example during periods of congestion, with the requirement that within a network or traffic type all data must be treated equally. Additional rules cover protections for people with disabilities, consumer privacy and advocacy and FCC monitoring and enforcement.

Introduction

This matrix by BCoE reviews the rules from the perspectives of the pros and cons to consumers, ISPs, and content creator/providers. Though these rules are in the process of being repealed and replaced by the current political administration, BCoE feels it is important to establish a baseline from which the new rules be measured.

There is much discussion, political rhetoric, opinion and confusion as to whether the 2015 rules are good or bad. BCoE believes that there are multiple legitimate viewpoints. For instance, does one believe in government control or industry self-policing, are you an ISP or content provider, is the Internet a public commodity or a corporate entity, should the ISP or the content provider or both bear the cost of sufficient network capacity for a positive user experience.



BCoE brings its own view to this discussion: Internet access must be available universally, be at high performance as well as unrestricted and affordable, with reasonable financial incentives for all parties. We welcome your comments and BCoE will provide an update to the matrix by the end of the year based on those comments that provide additional detail and insight.

TOPIC	NET NEUTRALITY PROS	NET NEUTRALITY CONS
Discrimination & Censorship	All lawful data treated equally, no preferential or biased treatment for any service or application from any source to any destination for any reason	None seen. Comments appreciated.
Services & Application Performance & Parity	Performance parity between applications and services because ISPs cannot prioritize. No individual service can pay to “dominate” available capacity since all services have equal access	Reduced user experience due to: 1) Network congestion because applications and services that utilize inordinate amounts of network capacity cannot be throttled 2) Lack of application specific optimization for gaming, HD streaming, videoconferencing because all applications must be treated equally
Innovation	Start-ups and small companies have performance equal to that of larger companies promoting investment in innovative new ideas	ISPs have little incentive to deploy innovative technologies to improve their networks due to difficulty of monetizing enhanced services
Network Performance	Shared bandwidth between ISP and content providers encourages ISPs to overprovision network capacity to minimize congestion for ISP services	Inability of an ISP to offer for-pay enhanced services, such as “fast lanes”, service prioritization and traffic volume tariffs, reduces incentive for ISP to invest in additional capacity
Consumer Pricing	Consumers are charged only for the speed of their network connection, not on size and type of services or applications used	ISP cost for increased network capacity to ease congestion will be borne by all consumers, including “light” users
Consumer/Content Provider Protection	ISPs cannot degrade a 3rd party service for the purpose of pushing consumers to their “enhanced” service	Comments appreciated
Consumer Privacy	Consumer online behavior can be kept private.	Net neutrality weakened online privacy by stripping the Federal Trade Commission of its jurisdiction over ISPs’ privacy and data security practices.
Consumer Complaint Resolution	Defined process to address consumer complaints and enforce rules	Comments appreciated
Protection for People with Disabilities	Provided under Sections 225 and 255, including the requirement to transition from outdated text telephone (TTY) technology and provide real-time text (RTT) communication over IP networks	Comments appreciated



News about IEEE standards activities by Paul Nikolich follows.

The IEEE Communications Society recently held its 2017 International Conference on Communications in Paris, France. Over 2,500 academics and communications industry professionals attended the conference to hear about the latest developments in a wide range of topics such as 5G and beyond 5G, Internet of Everything, Smart Grid, Software Defined Networks and Green Communications.

I participated in a workshop specifically directed at advancing an IEEE authored "Road Map" for 5G and beyond. My focus was to lead a dialog with industry and academics on the emerging needs for the standards that are necessary to realize the vision of 5G and beyond technologies, components, equipment, services and.

We are in the early stages of preparing the Road Map, but it is clear the contributions of the participants in organizations such as the IEEE 802 LAN/MAN Standards Committee, IETF and 3GPP will all be essential to the long term continued growth in communications capabilities to deliver more efficient use of spectrum, more capacity, higher degrees of network flexibility, security and privacy, lower latency and, finally, higher availability.

These standards will enable the creation of a communications infrastructure that will not only allow you to watch ultra-high definition virtual and augmented reality videos on your next generation smart phones, but also will enable vehicular networking, autonomous systems operations and industrial automation. The Road Map will take several years to develop, but should be of value for at least the next decade.

International Broadband Items of Interest

Several interesting items appeared in the past few weeks regarding internet use and broadband expansion, or lack thereof. In India, for instance, a recent *New York Times* [ARTICLE](#) depicts the hard road ahead for expanding internet use in many rural areas. And another [ITEM](#) about Australia, also in the *Times*, recounted how the country messed up its \$36B effort to deploy a fiber optic broadband service by retaining the copper last mile.

Final Thoughts

In a very short time, the Internet has changed our civilization positively and negatively. I believe it is important to realize that network neutrality or whatever set of regulations (or none) that countries put on the Internet will be an influencing agent on billions of us. Therefore it is our duty as active members of the Internet community to collaborate on these regulations in order to guarantee a safe, powerful and innovative Internet for future generations to enjoy and from which they may prosper. UNH BCoE is seeking your active participation in this dialogue in the form of feedback and active engagement.

Rouzbeh